

SMALL CARNIVORES IN TWO PROTECTED AREAS OF ARUNACHAL PRADESH¹

APARAJITA DATTA²

(With one text-figure)

Key words: small carnivores, Arunachal Pradesh, Pakhui Wildlife Sanctuary, Namdapha Tiger Reserve

A survey of the small carnivores in Arunachal Pradesh was conducted in the Pakhui Wildlife Sanctuary and the Namdapha Tiger Reserve from November 1995 onwards. All direct sightings in the wild, captive individuals, dead specimens and reports by local tribals during the study period have been documented in this paper. A total of fifteen different species belonging to the Families Viverridae, Mustelidae and Herpestidae were recorded during this survey.

INTRODUCTION

As in most taxonomic groups, Arunachal Pradesh (A.P.) is home to a high diversity of small carnivores. In a recent review of small carnivores in A.P., Choudhury (1997) outlines the known and probable distribution of all species within protected areas there. He has given a detailed account of species occurrence in either individual protected areas or districts in A.P.

I sighted several small carnivores in Pakhui Wildlife Sanctuary (WLS) during a study on squirrels and primates from November 1995 to April 1996 and a four year study on hornbills which commenced from February 1997. I also made two visits to Namdapha Tiger Reserve (TR), which forms a second study site for the hornbill study. The note is a documentation of all direct sightings in the wild, captive individuals, dead specimens and reports by local tribals during this period. As Choudhury (1997) points out, no study on small carnivores has been undertaken in this region and information on their conservation status, abundance and distribution is scanty. Some anecdotal information on the diet and habits of the few species sighted is also presented here.

STUDY SITES

Pakhui WLS (92° 7.5'-92° 22' E and 26° 53.7'-27° 16.2' N) is located in East Kameng dist.

in western Arunachal Pradesh (Fig. 1). The sanctuary covers an area of 862 sq. km and is bounded to the north and west by the River Bhareli, to the east by the Pakke river and to the south by the Nameri WLS and reserve forests of Assam.

Pakhui is mainly a tropical semi-evergreen forest (Champion and Seth 1968) with altitude ranging from 200 m to 1500 m above msl. It lies in the foothills of the Himalaya and the terrain is steep and inaccessible in the higher reaches to the north. More than 230 plant species (angiosperms) have been recorded from here with a high representation of species from the Euphorbiaceae and Lauraceae families (Datta and Goyal, *in press*). The sanctuary is drained by a number of small rivers and perennial streams of the Bhareli and Pakke rivers, both of which are tributaries of the Brahmaputra. Cane extraction on a commercial basis occurred here till 1991. Occasionally, cane-cutters enter the forests here from the adjacent reserve forests of Assam. A small part of the forest near the southern boundary had also undergone some felling in the past before the area was declared a sanctuary in 1978.

A vast portion in the central and northern part of the sanctuary is quite inaccessible due to the dense vegetation, hilly terrain and the lack of trails. The only village, Mabusa, to the south

¹Accepted September, 1998

²Wildlife Institute of India, Post bag # 18, Chandrabani, Dehra Dun 248 001, U.P. India

FN: However, Choudhury JBNHS, 94(1) (1997) has reported the red panda from higher areas of Balpakram (1023 m) and Nokrek (1412 m) National Parks in Garo Hills, the lowest elevation recorded.

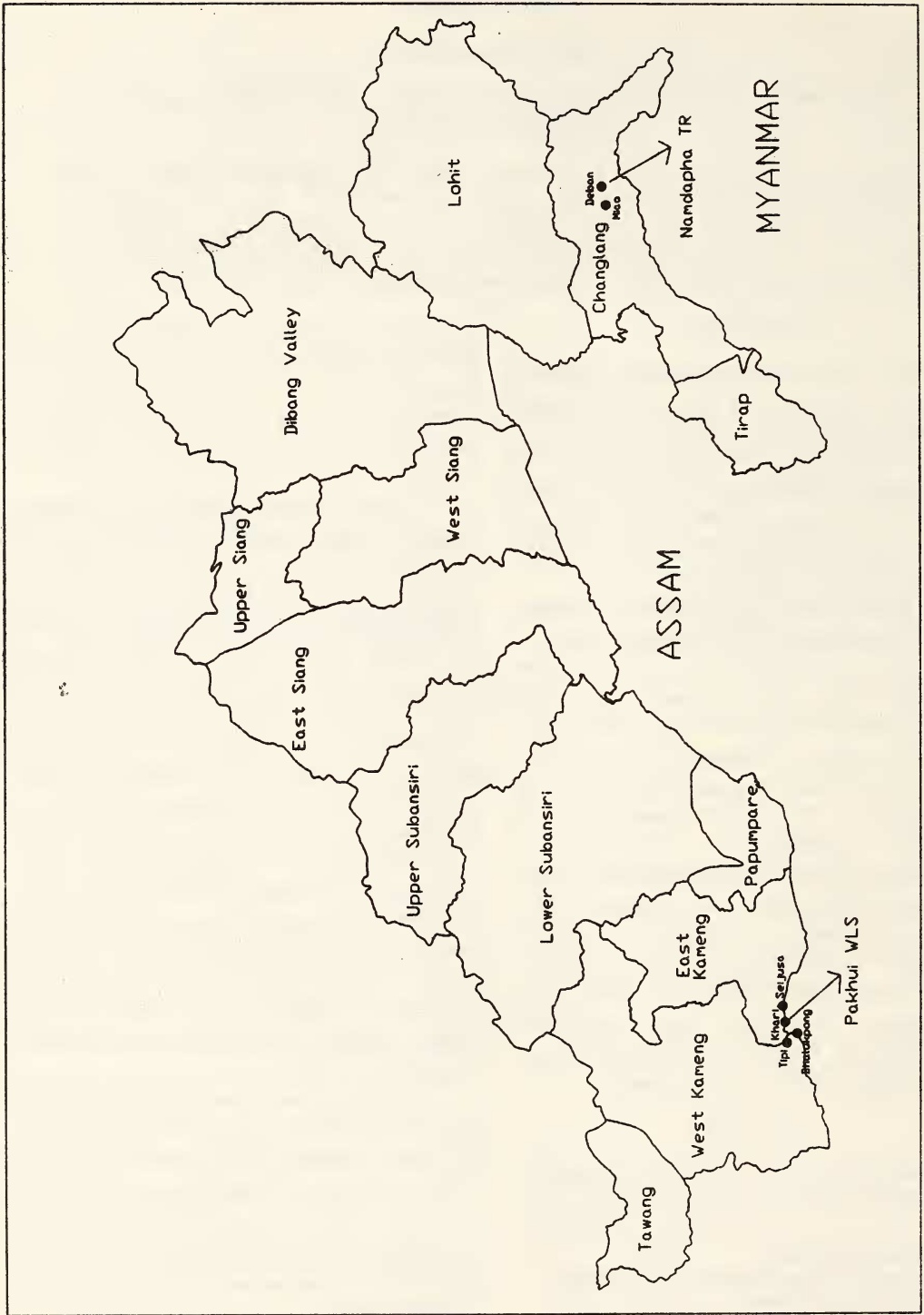


Fig. 1: Map showing locations of study sites in Arunachal Pradesh

of the sanctuary has been relocated outside. One or two settlements are present near the northern boundary. The Bhareli river is a barrier to human disturbance. Therefore, most of Pakhui WLS, except for a small strip to the south, has undisturbed primary forest.

Another study site is in Namdapha TR (27° 23'-27° 39' N and 96° 15'-96° 58' E) in Changlang dist., eastern A.P. The Namdapha TR covers an area of 1,985 sq. km, with a core area of 1,808 sq. km of primary evergreen forest which forms the national park (Fig. 1). The altitudinal range, from 200 m to above 4500 m, has resulted in the presence of diverse and rich fauna within this area. Many small streams and rivers drain into the Noa-dihing, a tributary of the Brahmaputra which flows through the reserve. There are three major forest types, viz. the northern Tropical Evergreen forests, north Indian Tropical Moist Deciduous forests and Miscellaneous forests (Champion and Seth 1968). It is bordered on the north by the Kamlang Wildlife Sanctuary, to the west of the Noa-dihing river lie the reserve forests of Lohit dist. To the south and southeast lie high mountain ranges and the international border with Myanmar. It is contiguous with reserve forests and sanctuaries to the south and west, which act as buffer zones, though the reserve forests and unclassed state forests across the Noa-dihing in Lohit dist. are severely degraded. There are settlements of Mishmi, Khamti and Tangsa tribes as well as cultivated land. Chakma settlements and their farmlands occur just adjacent to the border of the National Park on the banks of the Noa-dihing river as one approaches Deban from Miao by the Miao-Vijoyanagar road. This road runs right through the sanctuary, though it is motorable only upto Deban and 17th mile camp.

VIVERRIDAE

Of the nine civet species known to occur in India, seven occur in Arunachal. Two of these are restricted to the northeast in India. The binturong and spotted linsang are listed in

Schedule I of the Wildlife (Protection) Act, 1972, while other civet species are listed in Schedule II. Choudhury (1997) reports the occurrence of the small-toothed palm civet (*Arctogalidia trivirgata*) in eastern A.P., a species not reported earlier within Indian limits.

1. Common palm civet (*Paradoxurus hermaphroditus*)

I sighted the palm civet on four occasions. All the sightings were on trees. On one occasion, the animal was resting among the branches and a mass of basket ferns and lianas about 15 m up a tree during the day in Tipi (Pakhui WLS). The other three sightings were around 7-8 pm in Seijusa and Khari (Pakhui WLS). Two sightings were on a fruiting tree of *Gynoeardia odorata* (Chalmugra in Assamese), a cauliflorous species. Civet droppings with seeds of *G. odorata* are very commonly seen along forest trails in Pakhui WLS.

2. Himalayan palm civet or Masked palm civet (*Paguma larvata*)

The Himalayan palm civet was not sighted at all, nor did I come across any indirect evidence of the species, but it is reportedly common and occurs all over A.P. (Choudhury 1997).

3. Spotted linsang or tiger-civet (*Prionodon pardicolor*)

Even though the tiger-civet was not sighted, a local assistant when shown the plates in Prater (1980) insisted that he had seen the animal in a plantation in the adjacent Papum Reserve Forest, East Kameng dist., near a fig tree. This species is considered the rarest of the small carnivores (Choudhury 1997).

4. Large Indian civet (*Viverra zibetha*)

This was never sighted in the sanctuary, though a skin of the animal was seen at Bhalukpong (Assam-Arunachal border town, West Kameng dist.). It had been used for covering the *dao* of a Nishi tribal.

5. Small Indian civet (*Viverricula indica*)

The small Indian civet reportedly raids houses to kill poultry (Prater 1980, Choudhury 1997). In Pakhui WLS, tribals employed by the Forest Department had kept some chickens in a bamboo enclosure in Khari area. One evening in May 1997, there was a big commotion and we found a small Indian civet inside the enclosure. It had killed two hens and some of the chicks had been bitten, while others had died, probably of shock. On our opening the enclosure, the animal ran off and did not return. The second sighting I had of the species was on the Miao-Vijoyanagar road on the way to Deban in Namdapha TR at around 7 pm on November 20, 1997.

6. Binturong or bear-cat (*Arctictis binturong*)

I have had two confirmed sightings of this species, two other glimpses of a black animal could not be confirmed. Both sightings were in Tipi, and both on a fruiting fig (*Ficus maccllellandi*). On the first occasion in 1996, on hearing us, the binturong moved into a tangle of lianas and was only partly visible. In December 1997, we observed it for about 15 minutes, moving slowly on the tree and periodically feeding on the ripe figs. It did not shy away, though there were eight of us watching from about 20 m away. I photographed it, however, the pictures are not clear. Nitin D. Rai (a colleague) also sighted it sleeping curled up on a tree in June 1995 near Seijusa. My local assistants have also seen it during the daytime on a fruiting tree of *Ficus lamponga* (Dimoru), a free-standing cauliflorous fig. The binturong may be more diurnal than previously supposed. A skin of the animal was also seen with a Nishi tribal in Seijusa village. The species has been photographed using camera traps in Namdapha TR by Vidya R. Athreya (Athreya and Johnsingh 1995).

Indirect evidence

Though civet sightings were not frequent, droppings on fallen logs, rocks and stones were

very common. Besides figs, the food species of civets include fruits of *Vitex pentaphylla*, *Elaeocarpus ganitrus* (Rudraksh), *Gynoecardia odorata*, and the palm *Livistonia jenkinsii* (Tokko pat). From December 1997 to January 1998, most civet droppings contained seeds of *Vitex pentaphylla*. Seeds of some climbers were also found in the droppings. *Gynoecardia odorata* seeds collected from civet droppings were viable and germinated successfully (87% germination success). Civets are hence probably important dispersers of some of their food plants in this area.

MUSTELIDAE

Among mustelids, only the hog-badger and the clawless otter are listed under Schedule I of the Wildlife (Protection) Act, 1972. Ferret badgers, martens and the two other otter species are listed under Schedule II.

1. Weasels (*Mustela* spp.)

Of the three weasel species reported to occur in Arunachal Pradesh, both the stripedbacked weasel (*Mustela strigidorsa*) and the yellow-bellied weasel (*Mustela kathiah*) may occur in the higher inaccessible areas of Pakhui WLS since their known altitudinal distribution ranges from 1000 to 2000 m above msl. The tail of an animal trapped by tribals in Seijusa might have been that of a weasel. A specimen of the stripedbacked weasel from Namdapha TR was seen in the Miao Museum collection maintained by the A.P. Forest Department.

2. Yellowthroated marten (*Martes flavigula*)

Martens were sighted on three occasions in Pakhui WLS, all during daytime. A pair was sighted running down a huge fruiting strangler fig in Tipi (undisturbed primary forest). The second sighting was that of a solitary animal on a trail less than 100 m from the Forest Department camp and habitation at Seijusa. The animal was sighted at dusk and was moving under a nest tree of the wreathed hornbill. On

becoming aware of my presence on a machan near the tree, the marten scampered off into the undergrowth. Yellowthroated martens are reported predators of hornbill chicks at nests (Poonswad *et al.* 1987). A third sighting was of a solitary animal on a forest trail. The other individual of the pair was nearby. It was coming from the direction of a large fruiting strangler fig tree. This area was also in secondary forest frequented by people in Seijusa. It made some peculiar calls on sighting me. I sighted a pair of martens in Namdapha TR on the stretch of road between Hornbill camp and Haldibari in November 1997. The pair were calling continuously from the ground, but they clambered up a tree trunk on being disturbed. Two animals, probably martens, also entered into the wooden camp at Hornbill (Namdapha TR) in the middle of the night, probably in search of food near the smouldering fire where food had been cooked. Though I did not get to see them properly, from the calls they made, it was likely that they were martens. I also saw a solitary yellowthroated marten foraging on a large fruiting *Ficus* tree near Deban, in the late afternoon on a cloudy, rainy day in April 1996.

3. Ferret-badgers (*Melogale* spp.)

A stuffed specimen of a ferret-badger was recovered from a local tribal in Seijusa (Pakhui WLS). The specimen had a pungent musky odour. Apparently, these creatures are commonly seen only along small streams or rivers at dusk. Since two species reportedly occur in A.P., I got the specimen identified at the Zoological Survey of India, Calcutta. The main difference between the two species is in the molar teeth. In the Burmese ferret-badger (*Melogale personata*), the molars are massive and wide-crowned, while in the Chinese ferret-badgers (*M. moschata*), they are small and narrow-crowned (Prater 1980). The Burmese ferret-badger also has a narrow white stripe running from the crown of the head to the middle of the rump, which in the Chinese ferret-badger usually extends only till the shoulders.

The specimen I had obtained was identified as the Burmese ferret-badger.

4. Hog-badger (*Arctonyx collaris*)

There was no evidence or sighting of the hog-badger in Pakhui WLS. In Namdapha TR, one was reportedly sighted by Mr. P.K. Biswas, a Forest Department employee.

5. Otters (*Lutra* spp.)

All three otter species from India occur within A.P. Though otters were never sighted, otter tracks and fresh spraints were very commonly seen along the Bhareli river in Tipi, the smaller perennial streams of Khari and Lalung nala, towards Upper Dikrai nala beyond Khari, and also along Juli and Diju nala near Seijusa. Pakhui is criss-crossed by innumerable perennial streams, besides being bounded by two large rivers, therefore there is extensive otter habitat here. An otter skin was seen in 1996 with a local who was going to sell it in a local market.

6. Red panda or cat-bear (*Ailurus fulgens*)

Even though Choudhury (1997) mentions that the presence of red panda in Pakhui remains to be confirmed, I feel it is unlikely that the species would occur within Pakhui WLS. The elevation is above 1500 m in some places, but the general elevation is rarely above 1000 m and the vegetation is mainly tropical semi-evergreen forest. The red panda is found in subtropical and moist temperate forest with bamboos, and in subalpine forest. These vegetation types do not seem to occur within the sanctuary, even though the northern higher areas of the sanctuary still remain unexplored. I have seen tracks of the red panda in the snow in Eagle's Nest Sanctuary (which adjoins Pakhui WLS to its west) where a certain thin bamboo (reportedly its food species) predominates, but such vegetation is absent from Pakhui WLS. Corbet and Hill (1992) report an altitudinal range of 2200 to 4800 m for the species. In Eagle's Nest Sanctuary, red panda habitat occurs from 2400 to 2800 m (especially

the area between Lama camp and Sunderview camp). This area is snow-bound in winter. No part of Pakhui is snow-bound in winter.

HERPESTIDAE

All species of herpestids are listed in Schedule IV of the Wildlife (Protection) Act of 1972.

1. Small Indian Mongoose (*Herpestes auropunctatus*)

The small Indian mongoose was sighted

in open areas around habitation several times. One was kept as a pet by my assistant for some time till it was killed by a dog.

2. Common mongoose (*Herpestes edwardsi*)

The common mongoose was not sighted at all.

3. Crab-eating mongoose (*Herpestes urva*)

The crab-eating mongoose was reported in Namdapha TR by Athreya and Johnsingh (1995).

REFERENCES

- ANON (1992): The Wildlife (Protection) Act, 1972 (as amended up to 1991). Natraj Publishers, Dehra Dun.
- ATHREYA V.R. & A.J.T. JOHNSINGH (1995): Survey of the clouded leopard (*Neofelis nebulosa*) in Northeast India. Unpublished report, Wildlife Institute of India, Dehra Dun.
- CHAMPION, H.G. & S.K. SETH (1968): A revised survey of the forest types of India, Manager of Publications, Govt. of India, New Delhi.
- CHOUHDURY, A. (1997): Small carnivores (Mustelids, viverrids, herpestids and one ailurid) in Arunachal Pradesh, India. *Small Carnivore Conservation Newsletter*, No. 17, pp. 7-9.
- CORBET, G.B. & J.E. HILL (1992): The Mammals of the IndoMalayan region: a systematic review. Natural History Museum Publications. Oxford University Press. pp. 488.
- DATTA, A. & S.P. GOYAL (in press.): Response of arboreal mammals to selective logging in western Arunachal Pradesh. Report submitted to Wildlife Institute of India, Dehradun.
- POONSWAD, P. TSUJI, & C. NGAMPONGSAI (1987): A comparative study on breeding biology of sympatric hornbill species (Bucerotidae) in Thailand with implications for breeding in captivity. Proc. Jean Delacour/IFCB Symposium on breeding birds in captivity: 250-315. North Hollywood, California: International Foundation for the Conservation of Birds.
- PRATER, S.H. (1980): The Book of Indian Animals. Bombay Natural History Society, 3rd ed. pp 324.

